

## Drinking Water Tech Tips

# Troubleshooting Bladder Pressure Tanks

### What is a bladder pressure tank?

It is a type of tank containing pressurized air and water separated by a membrane (bladder). They are pre-charged with air at the factory. On average, a bladder pressure tank lasts 5-7 years.

### How do bladder pressure tanks work?

As water pressure changes, the volume of air in a bladder pressure tank contracts and expands. Periodically, the amount of air in the tank should be measured and the tank recharged if the air is too low. Bladder pressure tanks do not provide any useful water storage capacity.

### What functions do bladder pressure tanks serve?

- Maintain a desired range of water pressure in the distribution system.
- Minimize pump cycling, preventing frequent starts and stops protecting facilities from damage.
- Protect against water hammer.

## Troubleshooting Guide

### Check the bladder pressure tank air charge

- Disconnect electrical power to the pump.
- Drain the tank by opening the closest faucet.
- Check tank pressure by placing a tire gauge on the air-charging valve on top of the tank.
- Add air if the pressure is more than 2 psi below the pump cut-in pressure (lowest pressure in the range). Use a tire pump or air compressor. Use caution with an air compressor.
- Release air if the pressure is 2 psi above the pump cut-in pressure.
- Check for leaks in the air charging system. Use a soap solution to check the air-charging valve for leaks.
- Re-start the pump and run through a normal cycle to verify the setting.

💡 **Helpful hint!** If tank pressure drops, the bladder may have a tear or hole in it.

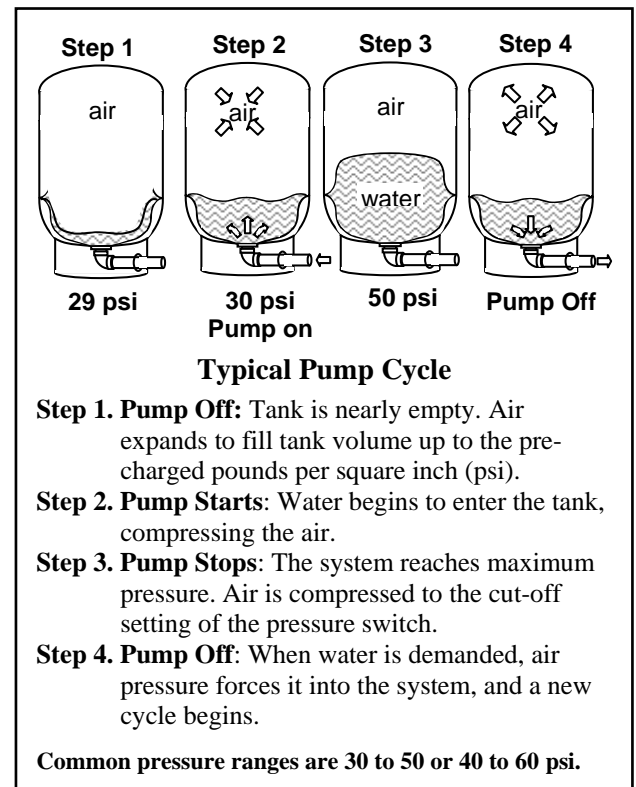
### Check for waterlogged bladder pressure tank problems

A tank is waterlogged if it is completely filled with water or has too much water to function correctly.

Waterlogged bladder pressure tanks contribute to the following problems:

- The pump motor cycles – turns on and off – too often. Frequent cycling can shorten the lifespan of a pump. 1 to 5 HP pump motors should not cycle more than six times an hour. If your pump is cycling, check to see if the tank(s) is waterlogged.
- Unsatisfactory coliform samples or taste and odor complaints. Waterlogged tanks contain stagnant water that can contribute to bacterial problems or taste and odor complaints.
- Premature tank failure. The inside walls of a waterlogged tank can corrode and weaken from the exposure to water.

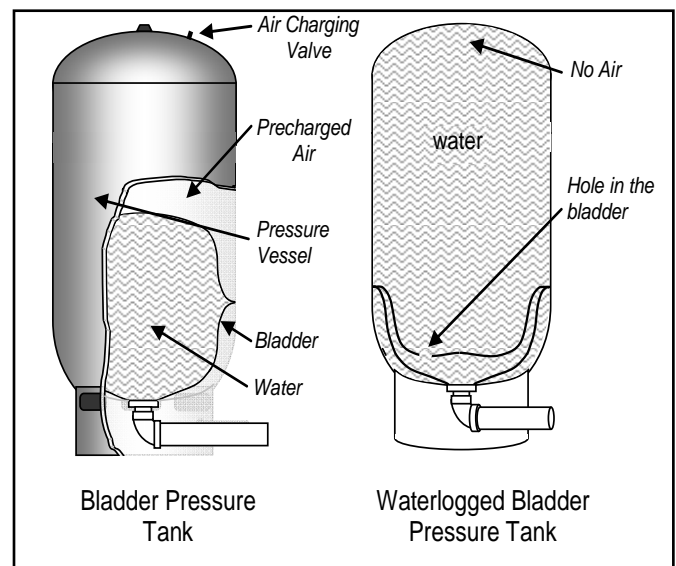
💡 **Helpful hint!** It is often most cost-efficient to replace a waterlogged tank.



### If your tank is waterlogged, check for possible causes

Bladder pressure tanks can become waterlogged for many reasons. Some of the more common reasons are:

- Sediment, such as iron and manganese, can coat the surface of a bladder, causing it to harden and become less flexible.
- Sediments can plug the fill or draw line, preventing the tank from filling and emptying normally.
- High levels of chlorine can damage the bladder, causing it to become brittle and less flexible.
- Tanks sitting directly on the ground rust and lose structural integrity.
- Chlorinators give off corrosive vapors that cause the tank to rust.



**Remember! When working with bladder pressure tanks it is important to read and follow the Manufacturer's Safety Warnings!**

### For more information

We offer many publications online at <https://fortress.wa.gov/doh/eh/dw/publications/publications.cfm>

**Pressure Relief Valves on Pressure Tanks (331-429)**, a one-page illustrated tech tip, explains design requirements, how pressure relief valves protect pressure tanks, and how to ensure pressure relief valves are approved and properly installed.

Contact our nearest regional office from 8 a.m. to 5 p.m. Monday through Friday. If you have an after-hours emergency, call (877) 481-4901.

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